

South Africa was overcome by the invention of a system of kites by Baden-Powell. In order to make wireless telegraphy successful it is necessary to raise the wire attached to the instrument to a considerable distance in the air. Thus, to telegraph 60 miles the elevation of the wire should be at least 100 feet above the surface. It was often impossible to find any way to secure this altitude for the wires, but by using the kites the problem was easily solved. Kites of the Baden-Powell type consequently became inseparably associated with the wireless telegraphy in South Africa, and it was by this means that messages were sent a distance of 60 miles.

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WIRELESS TELEPHONY.

Already in December 1899, the Editor had occasion to confer with Prof. R. A. Fessenden as to the possibility of modifying Marconi's system of wireless telegraphy, so as to give us a system of wireless telephony. Methods were suggested

that can perhaps be made to work successfully, but the problem is far more delicate than that of wireless telegraphy and it is more important that the latter should first be developed to a high state of perfection, in order that we may with ease communicate with stations at very great distances. The 100 miles spoken of as an exceptional success, in the above paragraph, ought to become a matter of every day occurrence. Such great distances can, of course, be attained by using sending and receiving wires of very great length, suspended from poles or kites at great heights; but much better methods have already been devised by Professor Fessenden. A cablegram of September 8 announces that the wireless telephony has already been accomplished by the Chief of the Postal Telegraph Service of Great Britain, Mr. W. H. Preece, but this was only for a distance of five or six miles.

THE WEATHER OF THE MONTH.

By P. C. DAY, Acting Chief Division Meteorological Records.

PRESSURE.

The distribution of monthly mean pressure is graphically shown on Chart IV, and the numerical values are given in Tables I and X.

The areas of high pressure occupied their normal positions over the south Atlantic and north Pacific coasts, with slight departures from the normal. The permanent area of low pressure over the Plateau region embraced a wider extent of territory than the average, and the depression was considerably below the normal. The pressure was slightly above the normal in the Middle and South Atlantic States, attaining a maximum departure of +.07 inch at Augusta, Ga.; throughout the remaining part of the United States and the Dominion of Canada pressure was generally below the normal, with a maximum departure of -.10 inch at Yuma, Ariz. Compared with the preceding month, pressure was generally higher throughout the lower Mississippi Valley, the Atlantic and Gulf States, and over the northern Rocky Mountain and Plateau regions and the British Northwest Territories. In a narrow trough from the upper Lake region southwesterly to the south Pacific coast region the pressure was below that of the preceding month.

TEMPERATURE OF THE AIR.

The distribution of monthly mean surface temperature, as deduced from the records of about 1,000 stations, is shown on Chart VI.

Several periods of high temperature prevailed in the region east of the Rocky Mountains in connection with the southerly drift of the areas of high pressure toward the permanent high area off the south Atlantic coast. The average for the month was above the normal throughout the Atlantic and East Gulf States, the Ohio Valley, and the lower Lake region, also on the north Pacific coast, and in the upper Missouri Valley. Temperature was generally below the normal throughout the upper Lakes, the Mississippi Valley, and over the central and southern Rocky Mountain and Plateau regions. Maximum temperatures of 100° or over occurred at but few points east of the Mississippi Valley. In the upper Missouri Valley, however, and generally throughout the Plateau regions and in Arizona and parts of California, maximum temperatures from 110° to 120° were experienced. Minimum temperatures of 32° occurred at isolated points in the mountain sections.

In Canada.—Prof. R. F. Stupart says:

The mean temperature of the month did not differ very greatly from average in any part of the Dominion; the largest positive departures, amounting to some 2° or 3°, occurred in southern New Brunswick and western Nova Scotia, and the largest negative departures, also from 2° to 3°, in eastern Quebec, Alberta, and western Saskatchewan. A pronounced heat wave passed over the more western and southern portions of Ontario during the 6th and 7th, when temperatures of over 90° were registered, and still greater heat was recorded in Assiniboia between the 23d and 25th, when 102° was registered at Medicine Hat.

The average temperature for the several geographic districts and the departures from normal values are shown in the following table:

Average temperatures and departures from the normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since January 1.	Average departures since January 1.
New England.....	10	69.2	+ 1.4	+ 3.7	+ 0.5
Middle Atlantic.....	12	77.1	+ 2.5	+ 3.5	+ 0.5
South Atlantic.....	10	81.2	+ 1.3	- 3.6	- 0.5
Florida Peninsula.....	7	82.0	+ 0.5	- 6.0	- 0.9
East Gulf.....	7	80.6	- 0.4	- 8.6	- 1.2
West Gulf.....	7	81.1	- 0.8	+ 0.5	+ 0.1
Ohio Valley and Tennessee....	12	77.7	+ 0.9	- 2.5	- 0.4
Lower Lake.....	8	71.8	+ 0.6	- 1.9	- 0.3
Upper Lake.....	9	66.5	- 0.8	+ 5.2	+ 0.7
North Dakota.....	8	68.8	+ 0.1	+ 29.1	+ 4.2
Upper Mississippi Valley.....	11	74.7	- 0.4	+ 5.1	+ 0.7
Missouri Valley.....	10	74.9	- 0.2	+ 16.4	+ 2.3
Northern Slope.....	7	69.2	- 0.4	+ 23.6	+ 4.2
Middle Slope.....	6	76.3	- 0.1	+ 12.7	+ 1.8
Southern Slope.....	6	77.4	- 2.0	+ 0.6	+ 0.1
Southern Plateau.....	15	78.7	+ 0.3	+ 12.0	+ 1.7
Middle Plateau.....	9	72.0	+ 0.7	+ 25.3	+ 3.6
Northern Plateau.....	10	67.7	- 0.2	+ 23.0	+ 3.3
North Pacific.....	9	62.3	+ 0.3	+ 14.2	+ 2.0
Middle Pacific.....	5	64.9	+ 0.5	+ 8.7	+ 1.2
South Pacific.....	4	71.2	+ 0.6	+ 11.8	+ 1.7

PRECIPITATION.

The monthly distribution of rainfall is shown on Chart III.

In parts of the Missouri and upper Mississippi valleys, the Lake region and over Texas, precipitation was above the normal, reaching a maximum departure of nearly 10 inches at Yankton, S. D., and over 15 inches at Galveston, Tex. In the South Atlantic and east Gulf States precipitation was much less than normal, especially on the immediate coast, where the fall was less than 50 per cent of the average. Throughout the remainder of the States and Territories the fall was generally less than the normal. No serious droughts

prevailed, however, except at the end of the month in Arizona and over parts of Colorado and Utah, where crops and stock were beginning to suffer for water.

For the period January 1 to July 31 of the current year the precipitation was generally less than the average.

In Canada.—Professor Stupart says:

In nearly all parts of the Province of Quebec and in eastern and northern Ontario the rainfall was nearly double the average for July. On the higher lands of western Ontario, and also in the Niagara Peninsula, it was well up to or in excess of the average, while close along the north shore of Lake Ontario, and in the counties of Grey and Bruce, there was a small deficiency. The most marked deficiency, however, occurred in the Maritime Provinces, and especially in the southern portion, where the weather was unusually dry.

In Manitoba and the Territories the total fall during the month was well up to average. The only note by observers relative to destruction of property by local storms is from Brandon; a tornado occurred 6 miles north of that town and injured houses.

The following table shows, by geographic districts, the precipitation departures from, and percentages of the normal for the current month, also the accumulated departures since the first of the year:

Average precipitation and departure from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
		<i>Inches.</i>		<i>Inches.</i>	<i>Inches.</i>
New England	10	2.18	63	-1.3	-0.4
Middle Atlantic	12	3.07	72	-1.2	-3.5
South Atlantic	10	3.18	52	-2.9	-1.3
Florida Peninsula	7	4.89	76	-1.6	+8.1
East Gulf	7	5.64	92	-0.5	-10.6
West Gulf	7	5.79	187	+2.7	+3.3
Ohio Valley and Tennessee	12	3.33	81	-0.8	-5.9
Lower Lake	8	4.67	152	+1.6	-0.1
Upper Lake	9	4.43	146	+1.4	-3.1
North Dakota	8	2.34	82	0.5	-6.2
Upper Mississippi Valley	11	4.91	132	+1.2	-2.6
Missouri Valley	10	6.43	168	+2.6	-0.7
Northern Slope	7	1.24	76	-0.4	-1.8
Middle Slope	6	2.86	100	0.0	-0.1
Southern Slope	6	4.95	168	+2.0	+3.0
Southern Plateau	15	0.89	56	-0.7	-1.9
Middle Plateau	9	0.09	18	-0.4	-1.5
Northern Plateau	10	0.26	46	-0.3	-0.9
North Pacific	9	0.64	68	-0.3	-0.6
Middle Pacific	5	T.	00	-0.1	-4.3
South Pacific	4	T.	00	0.0	-4.2

HAILSTORMS.

Severe hailstorms visited parts of Minnesota on the 10th, and occurred in both Minnesota and North Dakota on the 27th. Those of the 27th were especially severe over several counties and completed the destruction of such vegetation and crops as had not already succumbed to the effect of the disastrous drought earlier in the season.

HAIL

The following are the dates on which hail fell in the respective States:

Alabama, 17. Arizona, 20. California, 2. Colorado, 2, 3, 4, 8, 15, 22, 24. Connecticut, 7, 12. Florida, 10. Georgia, 11, 13. Idaho, 5, 26. Illinois, 7. Indiana, 7, 11, 24. Iowa, 5, 6, 10, 12, 14, 19, 21, 23. Kansas, 7, 11, 28. Kentucky, 24. Louisiana, 10, 16, 17. Maine, 7. Maryland, 12, 22. Massachusetts, 7, 12. Michigan, 4, 6, 8, 10, 11, 29, 30. Minnesota, 1, 3, 4, 7, 9, 10, 11, 13, 21, 22, 27. Missouri, 7, 10, 11, 12, 15, 24. Montana, 1, 26, 27. Nebraska, 2, 3, 6, 7, 10, 11, 14, 15, 18, 19, 22, 23, 27. Nevada, 22, 23. New Hampshire, 12. New Jersey, 7, 10, 12. New Mexico, 4, 7, 8, 10, 12, 17, 19, 25, 28, 29. New York, 6, 11, 15, 20, 21, 31. North Dakota, 10, 13. Ohio, 7, 11, 23, 31. Oregon, 4, 5, 21, 22, 30. South Carolina, 11, 28. South Dakota, 3, 27, 28. Tennessee, 22. Utah, 3. Virginia, 22, 30. Washington, 8. West Virginia, 12, 22. Wisconsin, 3, 6, 7, 9, 10, 18, 19, 22, 28. Wyoming, 1, 2, 6, 14, 15, 28.

WIND.

The maximum wind velocity at each Weather Bureau station for a period of five minutes is given in Table I, which also gives the altitude of Weather Bureau anemometers above ground.

Following are the velocities of 50 miles and over per hour registered during the month:

Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Boston, Mass.	18	52	w.	Mount Tamalpais, Cal.	25	60	nw.
Buffalo, N. Y.	7	56	sw.	Do.	26	54	nw.
Do.	8	52	sw.	New York, N. Y.	4	65	nw.
Do.	17	50	w.	Do.	7	85	nw.
Cleveland, Ohio	7	55	w.	Poict Reyes Light, Cal.	18	60	nw.
Do.	17	51	w.	St. Louis, Mo.	24	58	w.
Huron, S. Dak.	12	60	se.	Sioux City, Iowa	5	54	s.
Miles City, Mont.	22	50	e.	Yankton, S. Dak.	4	52	sw.

SUNSHINE AND CLOUDINESS.

The distribution of sunshine is graphically shown on Chart VII, and the numerical values of average daylight cloudiness, both for individual stations and by geographical districts, appear in Table I.

The current month showed generally less than the normal amount of clouds and, therefore, a corresponding excess of sunshine.

The averages for the various districts, with departures from the normal, are shown in the table below:

Average cloudiness and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	4.7	-0.2	Missouri Valley	3.9	-0.5
Middle Atlantic	4.3	-0.5	Northern Slope	3.5	-0.3
South Atlantic	4.4	-0.6	Middle Slope	3.6	-0.4
Florida Peninsula	5.1	+0.1	Southern Slope	4.2	+0.4
East Gulf	5.8	+0.8	Southern Plateau	2.0	-1.3
West Gulf	5.7	+1.5	Middle Plateau	2.2	+0.2
Ohio Valley and Tennessee	4.4	-0.2	Northern Plateau	2.5	-0.6
Lower Lake	5.0	+0.5	North Pacific Coast	4.0	-0.4
Upper Lake	5.3	+0.6	Middle Pacific Coast	2.5	-0.4
North Dakota	3.6	-0.7	South Pacific Coast	2.8	+0.1
Upper Mississippi	4.1	-0.2			

HUMIDITY.

As a result of the deficiency of rainfall and excess of sunshine the average humidity for July, 1900, was generally below the normal.

The averages by districts appear in the subjoined table:

Average relative humidity and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	71	-2	Missouri Valley	67	0
Middle Atlantic	70	-2	Northern Slope	52	0
South Atlantic	78	-2	Middle Slope	60	+1
Florida Peninsula	80	0	Southern Slope	64	+6
East Gulf	81	+2	Southern Plateau	34	-8
West Gulf	81	+3	Middle Plateau	22	-10
Ohio Valley and Tennessee	71	+2	Northern Plateau	37	-6
Lower Lake	71	+3	North Pacific Coast	71	-6
Upper Lake	75	+4	Middle Pacific Coast	57	-10
North Dakota	57	-9	South Pacific Coast	63	0
Upper Mississippi	72	+4			

ATMOSPHERIC ELECTRICITY.

Numerical statistics relative to auroras and thunderstorms are given in Table VII, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month, respectively.

Thunderstorms.—Reports of 6,376 thunderstorms were received during the current month as against 5,476 in 1899 and 5,736 during the preceding month.

The dates on which the number of reports of thunderstorms for the whole country were most numerous were: 19th, 309; 4th, 306; 7th, 299; 23d, 292.

Reports were most numerous from: Ohio, 377; New York, 374; Missouri, 357.

Auroras.—The evenings on which bright moonlight must

have interfered with observations of faint auroras are assumed to be the four preceding and following the date of full moon, viz, 8th to 16th.

In Canada.—Auroras were reported as follows: Victoria, 26th, 27th, and 28th.

Thunderstorms were reported as follows: Halifax, 12th; Grand Manan, 17th; Yarmouth, 18th; Chatham, 24th; Quebec, 7th, 11th, 13th, 23d, 24th, 30th, 31st; Ottawa, 31st; Kingston, 6th, 8th, 11th, 17th, 24th, 30th; Toronto, 5th, 6th, 11th, 15th, 17th, 29th; White River, 14th; Port Stanley, 5th, 7th, 8th, 11th, 15th, 17th, 21st, 29th, 31st; Saugeen, 14th, 24th; Parry Sound, 3d, 6th, 15th, 24th; Port Arthur, 2d, 14th, 19th, 28th; Minnedosa, 1st, 13th, 17th, 27th; Qu'Appelle, 12th, 13th, 16th, 17th; Medicine Hat, 8th, 9th, 25th; Swift Current, 9th, 12th, 24th, 27th; Calgary, 25th, 26th; Banff, 3d, 12th, 16th, 25th, 31st; Prince Albert, 2d, 4th, 12th; Battleford, 4th, 5th, 9th, 12th, 13th; Hamilton, 13th, 14th, 20th, 22d, 29th.

DESCRIPTION OF TABLES AND CHARTS.

By ALFRED J. HENRY, Professor of Meteorology.

For description of tables and charts see page 214 of REVIEW for May, 1900.